

AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
April 27, 2010

HISTORY RECORD

FAA Control # 10-01-293

Subject: Departure Procedure Route Instructions.

Background/Discussion:

The departure route description published on the Teterboro Six Standard Instrument Departure Procedure (SID) - as revised August 2009 - does not use a consistent format between the different runways. In addition, the departure route description provided for one runway (runway 24) could be easily misinterpreted by the pilot resulting in a climb above the initial altitude constraint provided for on that runway.

The complete Teterboro Six departure route description is provided below:



DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAYS 1/6: Climb to 2000 via heading 040° to TEB 2.3 DME, then climbing left turn via heading 280°, maintain 2000, thence

TAKE-OFF RUNWAY 19: Climb heading 195° to 900, then climbing right turn to 2000 via heading 280°, maintain 2000, thence

TAKE-OFF RUNWAY 24: Climb heading 240° to 1500 then climbing right turn via heading 280°, cross TEB 4.5 DME at 1500 (non-DME Aircraft cross COL R-011 at 1500), maintain 2000, thence

. . . . as per notes or via vector to assigned route/fix. Expect clearance to filed altitude/flight level ten minutes after departure.

The route description for runways 1 and 6 describe a climb to an altitude on a heading, whereas the route description for runway 19 and 24 describe a climb on a heading to an altitude. A careful reading of these instructions shows that they are describing the same thing, a maneuver (climb) on a prescribed heading to an initial altitude constraint. Each departure route description is followed by the description of the next maneuver in the sequence.

Further, after reaching the initial altitude constraint on runway 24 the pilot is instructed to continue the climb, but the altitude the pilot is instructed to climb to is the same as the initial altitude constraint. The potential for an altitude deviation above the initial 1500 ft level off altitude was deemed so critical that the departure route description was amended by NOTAM shortly after the Teterboro Six's August 2009 release:

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08/346 (A1190/09) - AIRSPACE TETERBORO SIX DEPARTURE...  
CHANGE RWY 24 DEPARTURE ROUTE DESCRIPTION TO READ:  
TAKE-OFF RWY 24: CLIMB HEADING 240 TO 1500, THEN RIGHT TURN VIA  
HEADING 280, CROSS TEB 4.5 DME AT 1500 (NON-DME AIRCRAFT CROSS COL  
R-011 AT 1500), CLIMB AND MAINTAIN 2000, THENCE. WIE UNTIL UFN. CREATED: 27  
AUG 22:02 2009
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A review of Appendix D, FAA Order 8260.46D Departure Procedure Program, in the paragraph that provide guidance concerning the content of the departure route description for Obstacle Departure Procedures (ODPs) and non-RNAV SIDs finds that there is no established order of preference or protocol for describing a departure route when the route consists of simple combinations of headings, altitudes, and/or fix crossings. Without such an established order of preference or protocol for these instructions, departure route descriptions may differ between varying departure procedures, and as seen by the above Teterboro example, the route description may even differ between runways on the same departure procedure.

Recommendations:

At the next scheduled revision of FAA Order 8260.46, include a protocol that is to be used when the initial departure route instructions involve a combination of multiple headings, altitudes, and/or fix crossing elements. A possible protocol would be to describe the initial aircraft maneuver, e.g. climb, climbing, or turn left/right, followed by the required heading, and then provide the next constraint, e.g. altitude, fix crossing, required prior to executing next maneuver; for example:

"climb" or "climbing left/right turn" heading XXX to (altitude), then "climbing left/right turn" heading XXX to (altitude), maintain (altitude) ..."

or

"climb" or "climbing left/right turn" heading XXX to (altitude), then "turn left/right" or "climbing left/right turn", as applicable, heading XXX to (altitude), or cross ABC a (altitude), then climb to (altitude) or climb and maintain (altitude)..."

Using this protocol, the Teterboro departure route instructions would read as follows:

TAKEOFF RUNWAYS 1/6: Climb heading 040 to TEB 2.3 DME, then climbing left turn heading 280 to 2000, maintain 2000, thence...

TAKEOFF RUNWAY 19: Climb heading 195 to 900, then climbing right turn heading 280 to 2000, maintain 2000, thence...

TAKEOFF RUNWAY 24: Climb heading 240 to 1500, then right turn 280, cross TEB 4.5 DME at 1500 (non DME aircraft cross COL R-011 at 1500), then climb and maintain 2000, thence...

NBAA believes that these amendments to FAA Order 8260.46 would greatly improve pilot understanding and comprehension of the departure route while also reducing the opportunity for pilot deviations away from the published route.

Comments:

This recommendation affects:

1. FAA Order 8260.46D, Departure Procedure Program

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Date: April 2, 2010

Initial Discussion - Meeting 10-01: New issue introduced by Rich Boll, on behalf of NBAA expressing concern over the lack of a standardized protocol for departure climb out instructions. The Teterboro Six Departure was offered as a prime example. Some departure instructions stated to climb to an altitude on a heading, some stated to climb on a heading to an altitude. However, the primary point of contention is the instructions for departing runway 24. Runway 24 instructions require "a climb to 1500, then a climbing right turn to 2000"; however, there is a mandatory 1500 crossing restriction specified at TEB 4.5 DME after the climbing right turn instruction. It is easy for a high performance aircraft to reach 1500 in a climb prior to the restriction point. A NOTAM has been issued to revise the text due to frequent violations of the mandatory 1500 restriction. Rich is recommending that at the next scheduled revision of Order 8260.46, a standard protocol be specified for departure instructions so that the instructions are in the order to be flown. Tom Schneider, AFS-420, responded that the current guidance intentionally didn't go into too much detail in order to provide the procedure specialist more flexibility. Brad Rush, AJW-372, agreed that the Order could use more standardization in the form of additional examples. Bill Hammett, AFS-420 (ISI), recommended the current SID be re-worded to eliminate the NOTAM and clarify the verbiage. Brad responded the SID is on the production schedule for May 5, 2011. Bill stated this would exceed the 224-day specified maximum time for temporary procedural NOTAMs. Gary Fiske took an IOU to advise New York TRACON that if increased priority was desired to coordinate the request through the RAPT. Tom agreed to include improved guidance and additional examples in the next revision to Order 8260.46 as recommended. All agreed the issue could be closed. **CLOSED**.
